REMARKS

Claims 1-20 remain in the application. Claims 1, 3 and 18 have been amended.

The rejection of claim 1 for indefiniteness is traversed. First, the claim does not say "the dry method". It says "a dry method". Second, as is established by the previous response, one of ordinary skill in the art would recognize what is meant by "dry method" and "wet method". Pages 5 and 6 of the previous response provided a detailed summary of "dry method" and "wet method" as understood in the fiberboard industry. Further, attached to the previous response were printouts of articles demonstrating that "dry method" and "wet method" were well recognized terms world wide. Page 7 of the previous response identified different US patents which refer to the "wet method" and the "dry method". The first declaration of Dr. Thole, at item 3, also provided a detailed description of what is known in the industry as "dry method" and "wet method". The second declaration of Dr. Thole, at item 2, affirms that these terms are well understood in the trade. Further, as noted in the second declaration of Dr. Thole it is noted that the moisture content is a defining feature of the wet method and the dry method. That is, as noted in item 2 of the second declaration of Dr. Thole, the wet method utilizes fibers prior to hot pressing that have a moisture content of more than 20% and the fiber mat is formed from a water-fiber suspension by sedimentation, while the dry method involves hot pressing fiber materials having a moisture content of less then 20% and the fiber mat is formed by scattering the dry fibers. The patent application does not use the terms "wet method" and "dry method" differently than is understood in the art.

Claims 1, 2, 5-10, 13, 16, and 19 were rejected as being obvious over WO 92/04169 to Ljungbo in view of U.S. Patent 4,820,345 to Berg and U.S. Patent Publication 2002/0100996 to Moyes. Claims 11-12 were rejected as being obvious over the Ljungbo/Berg/Moyes combination further in view of DE 19500653 to Numberger. Claims 3, 4, 14, 15, 17, and 18 were rejected as being obvious over the Ljungbo/Berg/Moyes combination in view of U.S. Patent 5,017,319 to Shen. Claim 20 was rejected as being obvious over the Ljungbo/Shen/Berg/Moyes combination in view of Numberger. Each of these

rejections is traversed.

In the previous amendment, independent claims 1 and 3 were amended to recite the use of water glass in soluble form. To address the comments in the office action, claims 1 and 3 now make clear that the water glass is a solution (see exemplary embodiments 2-4).. That is, both claims 1 and 3 require that potassium and/or sodium silicates are added as a solution to the fibrous materials. A fibrous non-woven formed from the mixture is then compressed and cured. In the declaration of Dr. Thole filed August 26, 2009, it was noted that the conventional wisdom was that one could not add binder to the blow line (as it is done in the present invention) because drying and precipitation of silicic acid would occur and bonding power would be lost. However, due to the humid atmosphere of the blow line and the fast drying which occurs, the claimed method is able to obtain good wetting of the surfaces of the fibers to be joined while retaining the reactivity of the water glass for activation of the binding component by subsequent hot pressing.

The prior art simply does not show combining wood fibers or other lignocellulosic fibrous materials with inorganic substances based on potassium and/or sodium silicates in soluble form, and compressing a fibrous non-woven formed from the mixture to a density of 350 kg/m^3 -1250 kg/m^3.

As explained in the previous response, to achieve a low inflammability, it is crucial that there is a homogenous distribution of water glass in the fiberboards (Examplary Embodiments 2-4 show boards prepared with different percentages of water glass having fire protective properties). If there is an inhomogenous distribution of water glass, the flame retarding effect is significantly lower. Because of this, it is better to add water in the blow-line and prior to the drying of the fibers than to add water glass in the dry mixer (this being heretofore unknown in the art). As explained in the previous response, it is possible to add the binders after drying of the fibers, but this is disadvantageous. Fibers for MDF have a very low bulk density of about 100 kg/m^3. The density of the binders is about 1000 kg/m^3. Under the assumption of the usual binder content of 10-15%, a small volume of binder has to be mixed intensively with a big volume of fibers. With normal dry mixers this is not possible. Furthermore, fibers tend to agglomerate to each other upon adding of binders. There are fiber agglomerates in the dry mix

process with very high binder content at the surface of the agglomerates and very low binder content on the inner part of the agglomerates. MDF made of such fibers is characterized by a very inhomogenous distribution of binders and low mechanical and low hydrophobic or hydroscopic properties. Furthermore, such fiber boards have spots on the surface of the plates affecting the coating ability adversely. The same negative properties are detected when adding water glass in the dry mixer.

Water glass can be added advantageously as a solution because powder tends to sediment, which would result in an inhomogenous distribution perpendicular to the main surfaces of the fiber cake and the fiber board. If the water glass is added in the blow-line, as is specifically contemplated in claims 1 and 18 as amended, the fibers are always in the required state regarding the water content and the water glass dries together with the fibers in the fiber drier. Because of the heat in the blow line blending, the ability to bind or the so called tak of the water glass is activated. After the drying process there is a fiber mixture with adherences of water glass, and a sedimentation cannot take place anymore.

See also the previous declaration and Dr. Thole and the second declaration of Dr. Thole (at item 3) concurrently filed with this response where it is demonstrated that prior art understanding was that the conditions present in a blow line were thought to be particularly adverse to bonding using water glass. This is because there is contact with carbon dioxide in the blow line, and because subsequent to drying there is a rapid increase in viscosity. As indicated in item 3 of Dr. Thole's concurrently filed declaration, one of ordinary skill in the art would have assumed (based on Scheiding, Zeppenfield, and Engler) that the waterglass would not have had any binding potential at the time of hot pressing (i.e., when it is needed). However, because of the rapid drying of the process (see item 3 of the first Thole declaration), the water glass is evenly distributed on the fibers and retains its binding capabilities.

As recognized in the office action, Ljungbo teaches adding glue as a powder, and specifically teaches away from the addition of water glass solutions "tests have also been made with waterglass...but these solutions bring about such difficult disturbances in the process- aggregation to fibre bundles or balls with poor binding to other fibers or poor though glueing- that no acceptable results

have been achieved that way" (page 1 para 5). Claims 1 and 3 have also been amended to recite the use of water glass solutions, and this is not taught in Ljungbo. Moreover, claims 1 and 18 require use of the water glass solution in the blow line, which, as noted in the Thole declarations, is specifically taught against by the prior art. As noted in the Thole declarations, normally dried water glass becomes a powder and should sediment during the dispersing of the fibers onto the press band. Surprisingly, this is not the case by adding the water glass solution in the blow line, as is set forth in the claimed invention. Because of the heat in the blow line blending, the ability to bind or the so called tak of the water glass is activated. After the drying process there is a fiber mixture with adherence from the water glass, and a sedimentation cannot take place anymore.

With regards to claims 7, 8, 17, and 18, Ljungbo does not teach adding the water glass either before or during defibering or into a transport element of the defibering process. Adding the water glass directly to the blow line during the defibering process has a surprising result that would not have been obvious to one of ordinary skill in the art. Namely, because of the heat in the blow line blending, the ability to bind or the so called tack of the water glass is activated and the water glass does not sediment as one would expect.

With regards to claims 5, 6, 13, 14, 15, and 16, Ljungbo teaches adding 25 parts powdered water glass to 100 parts dry wood fibers. Ljungbo specifically teaches away from using water glass in solution and instead requires a glue powder (pg 1, para 6). The current invention demonstrates that adding liquid water glass during the defibering process has a surprising result that would not have been obvious to one of ordinary skill in the art.

With regards to claims 9 and 19, Ljungbo teaches using a powdered silicate water glass in combination with a powdered filler. Ljungbo specifically teaches away from using water glass in solution and instead requires a glue powder (pg 1, para 6) and a powdered filler (pg 3, para 8). The current invention demonstrates that adding liquid water glass during the defibering process has a surprising result that would not have been obvious to one of ordinary skill in the art.

With regards to claim 10, Ljungbo teaches adding a hardener to the powdered water glass before or after adding the wood fibers.Ljungbo specifically

teaches away from using water glass in solution and instead requires a glue powder (pg 1, para 6) and a hardener (pg 2, para 5-6). The current invention demonstrates that adding liquid water glass during the defibering process has a surprising result that would not have been obvious to one of ordinary skill in the art.

With regards to claim 11,12 and 20, Ljungbo does not indicate the use of acid formers or additives that facilitate faster curing. Nurenberger teaches the use of carbon dioxide to harden molded mixtures of wood fibers and water glass to make biodegradable, nontoxic, digestible feed containers for use with animals and plants. Although the reference teaches the use of acid formers, the parameters do not apply to similar processes (biodegradable feed containers are not similar to fire-resistant fiber boards) and would not be obvious to one of ordinary skill in the art.

Berg and Moyes and Shen do not make up for the deficiencies of Ljungbo. Column 3 of Berg describes examples of formulations for making a construction product, but does not describe addition of a water glass to fiber under a water vapor atmosphere as required in claim 3, or in a blow line as required in claims 1 and 18. Therefore, Berg does not address the prior art teaching of not using water glass in such environments, and, as discussed in the Thole declarations, would not make the claimed invention obvious. Shen simply describes a process where a hemicellulose thermoset is used without using other binders--Shen does not show or suggest making fire resistant boards with water glass and has no teaching of the addition of a water glass to fiber under a water vapor atmosphere as required in claim 3, or in a blow line as required in claims 1 and 18. Moyes describes the formation of a fire door core. Moyes does not describe a process where a fibrous nonwoven mixture is created from a waterglass solution and fibers, and does not describe or suggest the addition of a water glass to fiber under a water vapor atmosphere as required in claim 3, or in a blow line as required in claims 1 and 18.

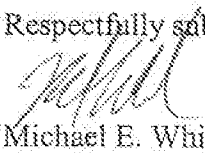
In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1-20 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local

telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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